

John W. Berkery, PhD.

CONTACT INFORMATION

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EDUCATION

Princeton University, Princeton, New Jersey
PhD., Mechanical and Aerospace Engineering, November, 2005
Master of Arts, Mechanical and Aerospace Engineering, June 2001
Cornell University, Ithaca, New York
Bachelor of Science (cum laude), Mechanical Engineering, January 1999

HONORS AND AWARDS

Fusion Energy Sciences Postdoctoral Research Fellowship, Department of Energy, 2005
Awarded to only two PhD. graduates in the United States per year
George Van Ness Lothrop Fellowship in Engineering, Princeton University, 2003
Awarded to only two Princeton graduate students per year
Program in Plasma Science and Technology Fellowship,
Princeton University and Princeton Plasma Physics Laboratory, 2000-2002
Frank O. Ellenwood Prize, Cornell University, 1999
Awarded to the senior with the highest GPA in heat and power engineering
Tau Beta Pi, National Engineering Honors Society
Pi Tau Sigma, Mechanical Engineering Honors Society
Deans List, Cornell University, 1996-1998

RESEARCH EXPERIENCE

Research Scientist September 2007 - present
APAM Department, Columbia University, New York, New York

I am currently a member of a small Columbia University research team working on a collaboration at the U.S. Department of Energy's Princeton Plasma Physics Lab, on the National Spherical Torus Experiment (NSTX). My research is focused on the resistive wall mode (RWM), an instability of the plasma that can appear in high pressure discharges. Specifically, I am experimentally and theoretically researching how the RWM can be stabilized by kinetic effects. This involves proposing and running experiments on NSTX, utilizing a kinetic stabilization code, and presenting findings at conferences and in publications.

Postdoctoral Research Fellow September 2005 - September 2007
APAM Department, Columbia University, New York, New York

The goal of my research program at the Columbia Non-neutral Torus (CNT) was to investigate enhanced confinement of a non-neutral plasma confined on stellarator magnetic surfaces, due to extreme electric fields. This study involved the design and construction of a retractable electron emitter for unperturbed plasma creation and systematic experimental study of equilibrium, stability and confinement properties using the diagnostic techniques developed. Experimentally determined enhanced confinement times were compared to theoretical results. For more information please see: <http://www.apam.columbia.edu/cnt>

Graduate Research Assistant September 1999 - September 2005.
MAE Department, Princeton University, Princeton, New Jersey

Completed a PhD research project in the Electric Propulsion and Plasma Dynamics Lab. The project was a fundamental study of current sheet physics to understand the inefficiencies of current sheets in accelerating plasma. This research involved both an extensive experimental study using various plasma diagnostics, such as such as interferometry, spectroscopy, high speed photography,

and magnetic field probing, and the construction of a model of the physics of the current sheet. For more information please see: <http://alfven.princeton.edu/personnel/berkery.htm>

Undergraduate Research Assistant 1998-1999
Department of Astronomy, Cornell University, Ithaca, New York

Tracked the progress of the scientific payloads of the Spirit and Opportunity Mars Exploration Rovers for principal investigator Prof. Squyres. Designed calibration equipment and prepared for instrument reviews.

Undergraduate Research Assistant 1998
MAE Department, Cornell University, Ithaca, New York

Conducted tests in a drop tower to burn spherical fuel droplets in microgravity.

TEACHING
EXPERIENCE

Lecturer Spring 2007
Columbia University, Applied Physics E4301: Intro to Plasma Physics

Co-taught a small class of undergraduates in an introductory plasma physics class. This is an advanced, topical physics class consisting mostly of seniors.

Lecturer Fall 2006
Columbia University, Applied Physics E6101: Plasma Physics I

Co-taught first year graduate students in a small introductory plasma physics course of only five students. Shared the lecture responsibilities with a professor.

Teaching Assistant Spring 2001, Spring 2002
Princeton University, MAE 324: Structure and Properties of Materials

Taught juniors and seniors in advanced class on materials science and engineering. Prepared and taught precept to own group of students. Prepared homework solutions and graded homework. Worked individually with students in office hour sessions.

Teaching and Laboratory Assistant Fall 2001
Princeton University, MAE 221: Thermodynamics

Taught sophomores in thermodynamics in the classroom and laboratory. Set up, supervised and helped with laboratory experiments. Prepared and taught review sessions. Graded homework and lab reports. Worked one on one with students on technical writing.

REFERENCES

Dr. Steven Sabbagh, Princeton Plasma Physics Lab, C-Site EWA 244, PPPL, Princeton, NJ 08540. sabbagh@pppl.gov, (609) 243-2645.

Professor Thomas Pedersen, Columbia University, APAM Dept., 200 S. W. Mudd Building, 500 W. 120th Street, New York, NY 10027. tsp22@columbia.edu, (212) 854-6528.

Professor Edgar Y. Choueiri, Princeton University, MAE Dept., E-Quad, Olden St., Princeton, NJ 08540. choueiri@princeton.edu, (609) 258-5220.